LPSO Plan for Information Management Implementing the Vision

Approved:

Roger Lewis
Defense Programs

Ralph Erickson Chief Operating Officer,

DP-3

Steppen Warren

Environmental Management

Michael J. Oldham Director, Office of Site Operations, EM-3 Richard Yockman Office of Seisuce

Milton D. Johnson Deputy Director for Operations, SC-3

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EXECUTIVE SUMMARY

The Department of Energy's (DOE's) Information Management (IM) community works within an operational and policy environment that is dynamic and demanding. With the majority of DOE mission activities being performed at field sites, the Lead Program Secretarial Offices (LPSOs) are critical in building action-oriented coalitions with field offices and leveraging the collective site experience to develop creative solutions for complex information management challenges.

These challenges have inspired the Office of Science, Defense Programs, and Environmental Management, to develop this LPSO IM Plan—Implementing the Vision to focus on four key areas: 1) a clear and focused LPSO IM roadmap; 2) a sound IM strategy; 3) increased collaboration of LPSOs and field offices; and 4) optimized implementation and operation of IM services. Our vision for information management is to develop an integrated strategy for adopting, implementing, and effectively managing information to support Program goals and objectives and for appropriately supporting corporate DOE IM/IT strategic objectives. Supporting the vision are four key principles that will guide our actions: 1) managing data; 2) program-orientation; 3) collaboration; and 4) user centric.

The three most inter-related LPSOs, SC, DP, and EM have assessed our collective situations and developed specific recommendations, that when implemented will increase our efficiency and provide a basis for improved cost effectiveness of IM implementations. These recommendations also address IM shortcomings identified in reports by the Inspector General (IG), General Accounting Office (GAO), and other reviews. As we move forward, we welcome the participation of other DOE Programs and are committed to bringing in programs such as the Offices of Energy Efficiency and Renewable Energy (EE), Office of Nuclear Energy, Science & Technology (NE), and Office of Fossil Energy (FE) as partners in implementing the vision.

The Plan represents the collective vision of DP, EM and SC to work in a collaborative environment with one another and our field sites to build bridges among diverse mission areas and to implement solutions that optimize individual and group performance. This Plan has been thoroughly discussed with the Departmental Chief Information Officer (CIO). It is the hope and vision of the LPSOs that the Plan will also foster increased communication among IM stakeholders and build a foundation for a collaborative DOE IM community, including better support of the Departmental CIO, the new CIO Executive Council, and the Executive Committee for IM (ECIM).

The Plan includes 11 specific implementation actions in the four key areas mentioned that expand the scope and effectiveness of IM services delivered without increasing cost. We expect that implementation of these recommendations will be accomplished within our existing budgets. This underscores our commitment to investing in activities we believe will produce long-term savings through better-formulated solutions and practices that recognize the strategic importance of the business case for IM/IT decisions being critical to the investment. Once expected savings are realized, resources can be applied to future mission-specific initiatives.

Maintaining a collaborative environment is key to achieving the Secretary's vision in supporting DOE's core mission and program functions. Working together with the Department CIO, we will define and implement policies and guidance to achieve the Secretary's vision. Our emphasis on managing data rather than technology will ensure that we are not constrained by technology driven solutions. Establishing a strong consensus-based policy framework will help to ensure that IT investments and applications satisfy LPSO program needs and position us to exploit unique opportunities for innovative business solutions.

Introduction

Effective management of an organization's business and administrative information is clearly recognized as critical to its successful operation and achievement of long-term goals and objectives. Establishing a well-coordinated program for managing information in any organization is complex, and particularly difficult in a large, geographically dispersed organization such as DOE.

The Department's diverse goals, ranging from elevating customer service standards to making targeted improvements in major areas, cannot be achieved without successful IM. Recognizing the enormous IM challenge before the Department, the three largest Program organizations SC, DP, and EM have committed to working together proactively to establish integrated and consistent initiatives among their organizations, and to work with the CIO on such endeavors throughout the Department.

The Office of Defense Programs and the Office of Defense Nuclear Nonproliferation (NN) have agreed to a Lead/Follow relationship in the IT/IS function. Defense Programs, as an LPSO, will be the lead. Defense Programs' principal IT focus will be at Headquarters and out to the field complex. Defense Nuclear Nonproliferations' principal focus will be at Headquarters and out to the classified State Department network as well as its foreign offices. Both offices will be represented on the DOE CIO Executive Council.

With a total Federal/contractor workforce of approximately 180,000 people, a set of missions that are highly complex, and an organizational structure that is widely diverse, the three Lead Program Secretarial Offices (LPSOs), with their direct-line responsibility over the majority of the Department's Operations Offices and Laboratories, are committed to "making a difference" regarding the management of Departmental information.

Purpose

The three LPSO organizations identified the common IM issues affecting their organizations. This plan outlines a comprehensive approach to establishing collaborative strategic information management, based on data interoperability and managed through cooperative decentralization, within these LPSO organizations.

The plan defines a collective vision and goals for information management, addresses more clearly joint and common requirements, and describes shared field relationships. The planned "roadmap" will identify specific implementation actions that ensure decisions support Departmental long-term goals and preserve flexibility and resources for delivery of customer services. The plan will also identify a consistent set of practices to improve and optimize mission performance through strategic information management.

Vision

Our vision for information management includes the collaborative development of an integrated strategy for adopting, implementing, and effectively managing information technology among the LPSOs to support program goals and objectives, and Corporate DOE IM/IT strategic goals. Guiding our vision are four key principles:

LPSO Key Principles
Managing data
Program-orientation
Collaboration
User Centric

Goals

Four strategic goals characterize fundamental success factors for information management within DOE.

- A Clear and Focused Roadmap for LPSO Information Management— The LPSOs will jointly develop a common, consensus-based IM Roadmap that reflects the needs of our business communities. The Roadmap will also provide a foundation for the development of a Technology architecture that takes into account the Corporate Systems Information Architecture, and existing infrastructures while establishing standards to achieve interoperability among heterogeneous systems.
- A Sound IM Strategy that has support from all IM stakeholders The LPSOs are committed to developing a collaborative IM Strategic Plan that supports LPSO strategic business goals and provides the foundation for our enterprise-wide approach to information management. Our approach will be based on user operating requirements that will drive the IM strategy. Information Technology will be viewed as an enabler to improve and extend the services to customers. The Plan will also establish a framework that aligns information technology resources in SC, DP, and EM with DOE's mission, goals and objectives.
- Increased collaboration of LPSOs and field offices Increased collaboration is critical to capitalize on LPSO and field integration issues and opportunities. To do this involves establishing clear and consistent roles and responsibilities for LPSO IT managers, developing a corporate mechanism for integrating field perspectives into policy, program direction and guidance decisions, and establishing a joint IT Capital Planning process.
- Optimized Implementation and Operation of IM Services The LPSOs will standardize IM funding and governance processes to support and implement the

roadmap, IM strategy, and to increase collaboration. When proven successful, these processes can be generalized for corporate purposes.

Implementation Actions

5.1 Information Management Roadmap

Situation Assessment

Too often, we have no long term planning horizon and the current rate of technology change and evolution of requirements are such that current corporate improvement activities are struggling keep pace with this evolution. Without a clear roadmap, DOE is finding its efforts to move to results-oriented management hindered by its inability to develop useful information systems that support performance measurement and substantive mission improvements. This has resulted in demands on our skilled, but resource-limited, staff to participate in parallel and in some cases, redundant efforts.

The Department's program driven management approach fosters an atmosphere in which Programs have been free to develop and manage the information management needs of their customers. Some Program offices have even developed specialized IT capabilities in response to program priorities (e.g. Lotus Notes). Overall information management should be a hybrid containing aspects of both a centralized and a decentralized management structure. We propose the following five categories for IM services:

- <u>Mandatory</u>: All Departmental elements are required to participate.
- <u>Consolidated</u>: These services are not mandatory, but because of their "infrastructure" nature should continue to be considered candidates for consolidated funding and management. Currently SO provides these services. In the future, alternative service providers should be considered.
- <u>Common</u>: These services can be performed independently by various program organizations, however, for purposes of economies of scale and associated efficiencies, consideration should be given to performing these services in a similar (or common manner). Voluntary collaborative efforts are encouraged.
- <u>Unique</u>: These services are Programmatic-specific and should not be considered candidates for consolidated (or collaborative) funding or management.
- Not Information Technology: Some services currently classified as IT services should be excluded from the list of functional services provided by the IM organization.

Appendix A provides a comprehensive list of current DOE information management services by category.

An effective performance measurement process for information management is needed within DOE that is focused on customer needs and measures the effectiveness or contribution of DOE's information systems. This will enable DOE stakeholders to better track progress, allocate resources, or learn from mistakes.

Next Steps

1. Develop an IM Roadmap

We will jointly lead a process to develop a corporate IM roadmap for the LPSOs that reflects the collective business and administrative needs of our community. We will invite business representatives from each of the LPSO organizations to participate in developing a consensus-based roadmap. Atechnology architecture will be developed in parallel that establishes standards for data interoperability and security. The plan will include prioritized IT initiatives and specific steps to accomplish them.

LPSO Lead: Defense Programs Timeframe: February 2001

2. Develop an LPSO IT Portfolio

An organization's information technology should be viewed as an investment portfolio, containing investments with different management objectives. Like any portfolio, it must be managed to achieve the organization's goals while balancing risk versus return. We will jointly develop an LPSO IT portfolio that represents our collective investment in IT, including people resources, hardware, software, telecommunications networks, data, training, etc. Having a comprehensive portfolio will enable us to explore opportunities for synergies, consider IT investments across the organization, and evaluate opportunities to cut costs by sharing resources.

LPSO Lead: Office of Science Timeframe: March 2001

3. Develop Service Level Agreements

Service Level Agreements (SLAs) provide a clear and explicit explanation of the services to be provided by the service provider to the customers who use their services. We will work with the Departmental CIO to develop joint SLAs for Corporate IT services and applications that fall into the "Consolidated" category. In this process, options for how these services are provided will be explored. If changes are to be recommended, business cases can be developed, as appropriate. Joint SLAs will also be developed for collaborative services that are in the "Common" category. LPSO specific SLAs will be developed for any services or applications that fall in the "Unique" category.

LPSO Lead: Defense Programs Timeframe: February 2001

4. Establish a Performance Measurement Process

We will develop a performance measurement process that embeds performance measurements in key management processes such as planning, budgeting, and Capital IT planning. A team will be formed to develop measures that specifically assess 1) the contribution of information technology investments to mission performance and 2) the performance of the LPSO IM organizations.

LPSO Lead: Office of Science

Timeframe: April 2001

5.2 Infrastructure Direction

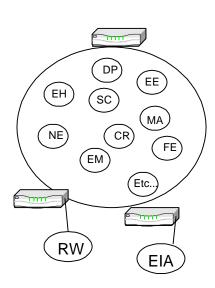
Situation Assessment

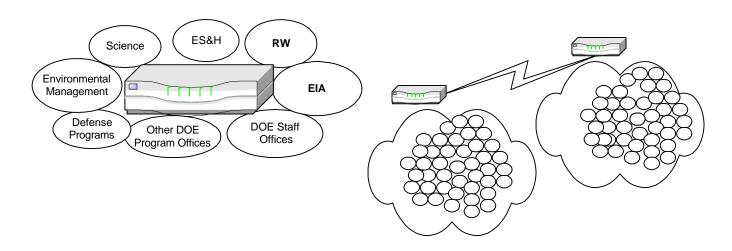
As stewards of corporate data, our focus must first be on facilitating the sharing and reuse of data to support business objectives and enhance service delivery. Sharing of data across functional, technical and organizational lines is hindered by the lack of a compatible architectural framework that ensures data interoperability, compatibility, and shared usage of technology resources among the LPSO organizations and standards that allow data access in a logical and organized manner.

Enabling the LPSOs to jointly improve their service delivery and internal operations capabilities requires a collective rethinking of the infrastructure. The Departmental CIO has taken a step in this direction with the Common Information Technology Infrastructure Services (CITIS) initiative. However, we believe consideration should also be given to alternative strategic approaches that produce services consistent with our four guiding principles. The result would be refocused stewardship of IT resources to ensure that the LPSOs acquire, develop, implement and manage IT in a manner that best meets the needs of customers and staff, and supports sound IT investment decision-making direction (see Infrastructure Model diagram below).

INFRASTRUCTURE MODELS

IT Centric Peering Converged Networks





=individual desktops

- Lowest Common denominator
- Homogeneous Envrionment
- Driven down IT costs@ expense of user
- "Utility" model

- Hetergeneous Environment
- Better functions
- · Cost can be higher
- 'Competitive Environment Model'

- Cost parity
- More functions
- Voice, Video & IT over IP
- Internet based

Appendix B provides a high level overview of two proposed alternatives.

Next Steps

1. Develop and Implement an LPSO Infrastructure Strategy

A consensus-based strategy and implementation plan for the three LPSO organizations will be developed to provide a foundation for a collaborative approach to IT management. The strategy will build on identified gaps between the baseline and vision and will address technology and implementation requirements to support communication, interoperability, and data sharing. Selecting and scheduling technology deployment and application development projects are logically sequential to this portion of the process. A common set of Technology Positioning Statements (TPS) will be developed to identify current and proposed future states for each infrastructure component. The proposed path forward will be presented to the LPSO senior management for decision making.

LPSO Lead: Environmental Management

Timeframe: May 2001

2. Maintain an LPSO Vision for Information Management

The LPSOs will review the vision to ensure that it continues to provide a common structure for information, applications, and technology infrastructure components. This will include defining relationships among the components, and identifying common design and deployment principles and guidelines.

LPSO Lead: Office of Science

Timeframe: June 2001

3. Develop LPSO Standard Data Definitions

The LPSOs will define data standards from a business perspective, as well as physical standards for different physical implementation platforms. The standards will:

- provide technical standards for management of LPSO data
- provide standards for data message definition, encryption and security
- provide standards for data quality management

Actual migration to those standards will happen over time due to the complexity of existing data in different formats.

LPSO Lead: Office of Science Timeframe: October 2001

5.3 Collaboration of LPSOs and Field

Situation Assessment

Shared challenges currently facing the LPSOs include:

- Lack of adequate IT funding for important IT initiatives (including support for Field Architecture development/implementation)
- Ineffective and/or limited communication mechanisms (e.g. DOE Intranet)
- Weak or ineffective performance measurement/benchmarking processes
- Inadequate synchronization of current infrastructure to support requirements for cyber security, physical security, and safeguards and security
- Lack of complex-wide standardization for hardware or software

These challenges have contributed to inconsistent and/or disjointed efforts between LPSO Headquarters and field sites, resulting in reactive rather than proactive operations. Furthermore, because of a lack of integration across LPSO lines, the LPSOs have not been able to take advantage of some opportunities to improve service delivery or save money. No mechanism exists to surface and capitalize on LPSO IM integration issues or opportunities. In addition, clear and consistent roles and responsibilities have not been established for LPSO IT managers.

The OMB required Capital IT Investments process is not integrated with the Program budgeting and evaluation processes and is often confusing and cumbersome. Submitted plans typically do not contain enough detail to evaluate long-term or short-term plans, or to determine how site investments might be leveraged. The LPSOs need effective mechanisms to review and evaluate IT capital investment plans.

Next Steps

1. Establish clear and consistent roles and responsibilities of LPSO IT Managers

The LPSO IT managers implement and manage the IM functions for their organizations. These LPSO IT managers also have additional or different program specific responsibilities based on their organizational context that may require a different model for execution. Identifying common/core roles and responsibilities will help focus these managers in areas where their knowledge and experience provide the greatest contribution and assist them in working together on complex strategy and implementation issues. A coordinated response from the LPSOs also supports the Deputy Secretary's direction in the September 15, 2000, memorandum, Improving Management of Information Technology, within the Department.

LPSO Lead: Environmental Management

Timeframe: November 2000

2. Integrate the Capital Planning, Budgeting and Evaluation Processes

Integrated planning, budgeting, and evaluation processes are the real test of whether an organization's information approach is truly strategic. Integrated processes help force the linkage of IT initiatives to the mission, provide tight controls, and allow regular assessments of performance.

To begin integrating all the elements of an integrated strategic planning cycle, the LPSOs will initiate a phased Capital IT Planning re-engineering project.

Phase 1:

- Conduct a joint review of the current Capital IT planning process
- Map the existing Capital IT planning processes to the business planning processes
- Identify goals and objectives for an integrated planning process
- Identify opportunities to integrate Capital IT and business planning

LPSO Lead: Environmental Management

Timeframe: October 2000

Phase 2:

• Work with the Departmental CIO to implement an integrated Capital IT planning, budgeting, and evaluation process.

LPSO Lead: TBD

Timeframe: October 2001

3. Sponsor an Initial LPSO Field Meeting

We will sponsor an LPSO field meeting in October, 2000. The focus of the meeting will be to identify and discuss collaborative initiatives among the LPSOs. Information received during the Capital IT reviews will be used as input to identify themes/common areas of interest. Subsequent meetings will be sponsored on a rotating basis among the LPSOs.

LPSO Lead: Environmental Management

Timeframe: October 2000

5.4 Implementation and Operation of Services

Situation Assessment

Corporate system initiatives should not be embarked upon without decisions made as to the resourcing of the operations and maintenance and the cost of roll-out conversion. Inadequate planning in the past has created significant bills that come late into the budgeting process and directly reduce individually and collectively the ability of the LPSO IT organizations to provide services and support for essential program needs.

DOE needs proactive, anticipatory management to lead the way in establishing well defined, and unambiguous funding and governance processes. Currently, there are several on-going and planned corporate IT initiatives which could lead to significant improvements, but need to increase in pace and results with increased involvement of the Programs.

The objective in developing Corporate Systems was to improve existing processes and save money, however, several factors have contributed to these projects being unsuccessful in meeting technical and cost objectives in some areas. For example, funding requirements are not always appropriately articulated to senior management. This leads to uncertainty in the apportionment of bills and often results in the development of systems without sufficient consideration of costs and lost productivity.

The Working Capital Fund is another example of a financial tool for improving management of common administrative and IT services. The fund is managed through the Office of Management and Administration, however line responsibility for services remains with Business Line Managers in MA, CFO and CIO. This reporting hierarchy presents a challenge for customers of the Fund to effectively influence the performance of their service providers because they do not directly report to the manager of the Fund.

Next Steps

1. Assess Impact of the Capital IT Planning and Budgeting Process on the LPSOs

The assessment of the impact is intended to yield both some rough estimates for future budget and planning purposes and to identify some potential corporate process improvements. The LPSOs are committed to raising these improvements with the Departmental CIO, the CIO Executive Council and the ECIM.

LPSO Lead: Defense Programs
Timeframe: December 2000

Summary

As directed by the LPSO Chief Operating Officers, we have prepared this Project Plan which contains 11 implementation actions to address common information management challenges among the LPSOs. Collectively these actions achieve the four strategic goals identified by us:

5.1	LPSO IM Roadmap	LPSO Lead	Timeframe
	Develop an IM Roadmap	DP	February 2001
	Develop an LPSO IT Portfolio	Science	March 2001
	Develop Service Level Agreements	DP	February 2001
	Establish a Performance Measurement	Science	April 2001
	Process		
5.2	LPSO Infrastructure Strategy		
	Develop and implement an LPSO	EM	May 2001
	Infrastructure Strategy		
	Maintain an LPSO Vision for IM	Science	June 2001
5.3	LPSO Collaboration		
	Establish clear and consistent roles and	EM	November 2000
	responsibilities of LPSO IT Managers		
	Integrate and Capital Planning, Budgeting	Phase 1:EM	October 2000
	and Evaluation Processes	Phase 2: TBD	TBD
	Sponsor an Initial LPSO Field Meeting	EM	October 2000
	Develop LPSO Standard Data Definitions	SC	October 2001
5.4	LPSO Optimized Implementation and		
	Operation of Services		
	Assess Impact on LPSOs of Current	DP	December 2000
	Problems w/ the Capital IT Planning		
	Process		

We are committed to continuing the collaborative approach to information management that resulted in the strategic vision identified in this Plan. Several key implementation activities will be completed within the next 30, 60, and 90 days. This underscores our commitment to take action and maintain momentum.

We will review the status of the implementation actions quarterly with the COOs and perform a self-assessment of our progress. We will review this plan on an annual basis. This process will enable us to review our approach and identify areas to add, modify or eliminate. This plan may also be updated periodically to reflect changing circumstances or mission requirements.

Appendix A: IM Services By Category

Mandatory	Consolidated	Common	Unique	Not IT
Connection Policies and Guidance	Consolidated Infrastructure Hotline (903-2500)	Internet Connectivity (ISP)	Enhanced System Engineering Projects	Cell Phones, Pagers, Calling Cards & STU III's
Configuration Management Policies and Procedures (including CCB)	Backbone Management Services - Routers, Hubs - Gateways (Mail, etc.) - Basic cabling - LAN Drop M/A/C - Circuit management	Remote Access Infrastructure	Enhanced System Development (enhancements/interfaces to corporate systems)	Spectrum Management
	Backbone Security Management Services - Boundary Protection - Intrusion Detection - Password Management - PKI - Backup and Recovery	DOENET	Tier 1,2 &3 "Support Center" Support (including Legacy System Support)	FY00/01 and International Long Distance Calling for HQ and Field
	E-Mail Backbone Management Services - Directory Services - Virus protection	IP Address Management Services (WINS)		
•	IP Address Management (DHCP and DNS)	Voice Management Services (O&M) - Telephone Switch O&M - Voice Line M/A/C - DOE Operators - FTS 200x Management - Teleconferencin g (voice mail, meet-me conferences)		
	DOENET ? (similar to Backbone Management)	Video Backbone Management Services - M/A/C - Scheduling		
		Property Management - Asset tracking - Asset tagging WEB Hosting		
		Email System/Messaging Services - NOTES - Exchange		
		Enhanced Network Management (Program Office		

Mandatory	Consolidated	Common	Unique	Not IT
		specific) - Backbone to desktop (e.g., 100Mb to Desktop - Print and File Services - Server Management - Backup and Recovery		
		Desktop Management - Remote Control - Configuration Management - Electronic Software distribution - Backup and recovery		
		User Support - Help Desk/Support Center (Tier 1/2/3 concept) - M/A/C - Data Back-up and Recovery - Virus Protection - Tier 1 (Telephone Services - Tier 2 (Desk- side Services - Tier 3 (Network Operations and Legacy System Support		
		Collaborative Tools - Notes - Exchange - NetMeeting (solution)		
		Enhanced Video Services and Solutions - Scheduling - O&M		
		Commercial Timesharing Mainframe Services		
		Technical Training Corporate Systems Development/Data Requirements		

Appendix B: Alternative Infrastructure Models

Converged Network Services

Converged network providers offer fully managed physical LAN infrastructures. These services normally include all the switches required for the desktop, backbone and server connectivity. They also include hardware and software maintenance services, network monitoring, and service level agreements to address technology refreshes. These services rely on the large-bandwidth Networks available today and the fact that many of the "commodity" services are very similar in enterprises across Industry. Additional services can include email, remote access, web hosting, video, helpdesk, etc. Service providers typically offer contracts up to three years and charge on a per-port basis, although new service and pricing models are constantly evolving. These providers, also referred to as Netsource vendors, specialize in particular services as technology and the marketplace permit.

Network Peering

A network peer to peer model option recognizes that each of the major DOE programs have specific Mission requirements that require ongoing IT infrastructure and data management systems critical to performing their specific business functions. There are numerous examples of mission specific business systems both in place and being developed to support ES&H, Scientific Research, Environmental Management, Accounting, Human Resources and Nuclear Weapons Management programs.

In a network peering relationship model, each of the 'peering partners' agrees to operate as part of an equal peer-peer member of a hub network infrastructure building the proper standards based IT components and data interfaces necessary for interoperability as part of this distributed model. The scientific community's 30+ years experience of operating EsNet has demonstrated that a strong but decentralized network steering committee (made up of representatives from each 'hub partner') can collectively adopt and deploy IT policy and standards for such a peer-to-peer network model. This steering committee approach ensures the ability to manage corporate data exchange requirements based on agreed to data standards and access control methods while allowing each program to focus on its primary business mission while meeting its individual program system and data management requirements. Such a network peer model recognizes each 'owner' of the data systems as a hub on the IT network infrastructure and as an equal player will be required to ensure appropriate data access and as necessary corporate data sharing between all DOE programs and staff offices.